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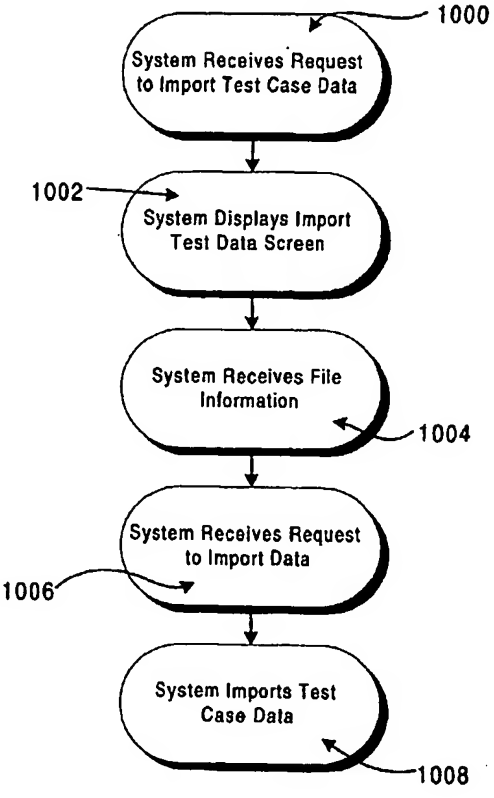
(54) Title: INTERACTIVE INSURANCE PREMIUM VERIFICATION SYSTEM AND METHOD



(57) Abstract: A method and system for interactively verifying insurance premium rate information. Initially, the system receives and saves insurance rate information relating to at least one insurance rate plan that is to be tested. Upon receipt of a user request to test the saved insurance rate information for accuracy, the system receives test case (1000) illustration data relating to at least one proposed insured. The system then analyzes the received test case (1000) illustration data and retrieves, from the saved insurance rate, the particular insurance rate information that corresponds to the received test case (1000) illustration data. The system then generates at least premium information associated with the particular test case (1000) based upon the retrieved insurance rate information. This information is then displayed (1002) to the user for review and or printing.

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INTERACTIVE INSURANCE PREMIUM VERIFICATION SYSTEM AND METHOD

BACKGROUND OF THE INVENTION

The present invention relates generally to systems and methods for verifying the accuracy of information. More particularly, the present invention relates to providing a comprehensive interactive tool for verifying the accuracy of insurance premium schedule information. The verification tool enables users to more quickly and accurately determine the accuracy of premium information.

Insurance companies generally offer a wide variety of insurance plans suited for various types of individuals and circumstances. Of course, all individuals who may choose to enroll in a plan may not be charged the same annual premium as every other individual. Factors such as age, sex, and medical history are used by actuaries to estimate the likelihood that that particular individual will file a claim against the company, with individuals considered more likely to file a claim typically charged a higher premium. In addition to demographic factors, additional factors such as the number of add-ons or riders also affect premium values. The high number of contributing factors consequentially increases the total number of factor combinations, each possibly having a different associated premium.

In accordance with conventional practice, actuaries mathematically create a variety of rate tables comprehensively listing premiums for each possible combination of factors. Once the rate tables for a particular insurance plan have been created, the tables must be checked to ensure accuracy and compliance with state regulations. Typically, verifying a set of new insurance plan rate tables includes manually testing the tables against a selected number of sample profiles. The resulting manually calculated premiums are then checked against predetermined premium values for the given plan. Further, many states require that evidence of rate table accuracy be submitted to the state for every new insurance plan. This evidence is typically in the form of a schedule of premiums for particular test profiles, indicating the premiums the insured would pay for the entire term of the coverage.

Conventionally, the practice of manual rate calculation suffers from several inherent deficiencies. In particular, the process takes a significant amount of time. To

establish rate table accuracy and to conform to state requirements typically requires testing 50-60 test cases per plan offering or rate change. Each plan takes approximately 35 minutes to calculate, resulting in a time consumption of approximately 29 hours per plan offering or rate change. Based upon an insurance company which introduces six new offerings or rate changes per year, this amounts to approximately 174 hours of manual effort per year. Of course, companies which offer more or less offerings or changes will require correspondingly different time consumption.

In addition to time consumption, the process of manually testing rate tables also includes significant likelihood for human error. Because the premium testing is conventionally done by individuals visually examining the rate tables to determine appropriate premium values, the likelihood that an individual will make an error is substantial. By simply transposing a single row or column in a table, the resulting manually calculated premium will be incorrect and will result in a rate table inaccuracy being generated where none may in fact exist.

Therefore, there is a need in the insurance industry for a method and system for testing the accuracy of actuarial rate tables having substantially decreased time requirements. There is a further need for an insurance premium rate table verification system having a significantly lower risk of error.

BRIEF SUMMARY OF THE INVENTION

The present invention overcomes the problems noted above, and provides additional advantages, by providing for a method and system for enabling interactive verification of insurance premium rates. Initially, the system receives and saves insurance rate information relating to at least one insurance rate plan that is to be tested. Upon receipt of a user request to test the saved insurance rate information for accuracy, the system receives test case illustration data relating to at least one proposed insured. The system then analyzes the received test case illustration data and retrieves, from the saved insurance rate, the particular insurance rate information that corresponds to the received test case illustration data. The system then generates at least premium information associated with the particular test case based upon the retrieved insurance rate information. This information is then displayed to the user for review and or printing.

In addition to providing enhanced rate table testing capability to the insurance industry, the preset system also preferably provides various other options to users such as batch test data upload capabilities; test data and rate information importation capabilities; and various printing and reporting options. By providing the above-described features in a comprehensive, user-friendly manner, the system optimizes the efficiency of the entire premium testing process.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention can be understood more completely by reading the following Detailed Description of exemplary embodiments, in conjunction with the accompanying drawings, in which:

FIG. 1 is a flow chart describing a method for interactively receiving and testing insurance rate information;

FIG. 2 is a preferred embodiment of a proposed insured data screen for receiving test case illustration data;

FIG. 3 is a flow chart describing a method for generating, reviewing and printing report information;

FIG. 4 is a preferred embodiment of a manual calculation worksheet generated in accordance with FIG. 3;

FIG. 5 is a referred embodiment of a schedule of premiums report generated in accordance with FIG. 3;

FIG. 6 is a flow chart describing a method for interactively editing table rating rates;

FIG. 7 is a flow chart describing a method for simultaneously printing and uploading a plurality of record reports;

FIG. 8 is a flow chart describing a method for operating an interactive annual premium calculator tool;

FIG. 9 is a flow chart describing a method for importing premium rate information and waiver rate information;

FIG. 10 is a flow chart describing a method for importing test case data information; and

FIG. 11 is a flow chart describing a method for receiving ancillary test case data.

DETAILED DESCRIPTION OF THE INVENTION

The system and method of the present invention described below, are preferably implemented by an interactive computer software application incorporated within a computer-readable medium such as a hard disk drive, an optical medium such as a compact disk, or the like. Further, the medium may be available to a user either locally on a user's computer or remotely over a computer network, such as a local area network (LAN) or the Internet. The inventive computer software application is designed to receive an actuarial rate table for testing as well as test case profile information interactively provided by the user. The application then analyzes the information and present several output options to the user in a convenient, easily understood and useful manner. In a preferred embodiment, the interactive software application is written in Microsoft Access, available from Microsoft Corporation, although any suitable programming language and interface are within the scope of the present invention.

Referring to the Figures and, in particular, to FIG. 1, there is shown a flow chart describing a method for verifying insurance premium rate information in accordance with one embodiment of the present invention. In step 100, an insurance policy verification system (hereinafter referred to as "the system") receives a user request to import insurance plan rate table information. In step 102, the system imports the rate table information into a database associated with the system. Preferably, the system uploads the rate table information into a resident database from user designated file location. Additional details of the rate table information importation process are set forth below in FIG. 8. Upon rate table information importation, the system, in step 104, receives a user request to test the rate plan with particular test case illustration data. In step 106, the system displays a proposed insured data screen including a plurality of interactive data entry fields.

Referring now to FIG. 2, there is shown one preferred embodiment of a proposed insured data screen 200. The proposed insured data screen 200 preferably includes three distinct areas, a basic information area 202, a premium mode area 203, a flat extras area

204, and a riders area 206. Each area 202, 203, 204, and 206 includes a interactive data entry fields for enabling the user to define identification information as well as the various factors contributing to the an individual's premium cost. A brief description of the various data entry fields is set forth below.

Referring first to the data fields within basic information area 202, field 208 is a policy number field wherein the user enters a unique policy number associated with the sample case. Field 210 is an insured's age field wherein the user enters the age of the sample insured. Field 212 is a sex field wherein the user enters the sex of the sample insured. Field 214 is an insurance plan drop-down menu. The user selects the desired insurance plan from the drop-down list.

Field 216 is a rate class field wherein the user enters the rate class applicable to the sample insured. A rate class essentially defines the amount of risk attributable to a particular insured, with a higher rate class denoting an insured having more risk. Field 218 is a units field wherein the number of units of insurance coverage sought are entered. Field 220 is a unit value field wherein the value of each unit entered in field 218 is entered. By default, the value of the unit value field is $1,000.00, however, modifications to this value may be made by the user.

Field 222 is a policy fee field wherein the user enters the amount of any policy fee applied to the insured. This field is not a required field in that a policy fee is not necessarily charged to every insured. Field 224 is a table rating drop-down menu wherein the user optionally selects from a predetermined listing of table ratings when a particular table rating is to be applied to an individual. A table rating is a method for an insurance carrier to position an insured between two successive rate classes. In this manner, if an individual's health criteria position the individual between two rate classes, a table rating can be assigned to more accurately determine the individual's premium. Typically, a table rating is valued as a percentage of the insured's base unit premium and progresses in previously defined increments. As with the policy fee field 216, selection of a tabling rating menu value is not required for every case. Field 226 is a coverage field which is automatically calculated based upon the information entered within the units field 218 and the unit value field 220 and represents the total coverage for which the insured is covered.

Referring now to the premium mode area 203, there is provided a listing of possible premium billing modes 227 including: annual, semi-annual, quarterly, monthly, and EFT (electronic funds transfer). A user selects the desired premium mode by selecting a radio button associated with the mode.

Referring now to the data entry fields within flat extra area 204, field 228 is a permanent flat extra field. Field 230 is a temporary flat extra field with a corresponding duration field 232. Flat extras refer to increases related to factors not considered in the rate class selection. For example, a prolonged trip to a third world country could result in a temporary flat extra being added to the insured's premium for the duration of the stay. Similarly, the fact that the insured is a licensed pilot could result in the addition of a permanent flat extra to the policy. Fields 228 and 230 receive dollar figures related to increases per unit.

Referring now to the data entry fields within the riders area 206, field 234 is a premium waver field, preferably in the form of a selectable check box. By selecting the premium waiver check box, the user indicates that the insured has selected to purchase a premium waiver rider. A premium waiver rider refers to increased premium costs whereby, should the insured become incapacitated or otherwise unable to work, the premiums for the policy would be continually paid by the insurance company until the insured is again able to resume work. Field 236 is a premium waiver rate field. By default the premium waiver rate field is set to a value of 1 indicating that the standard premium waiver rate applies to the insured. However, the user may adjust the premium waiver rating to another number which is then multiplied times the standard rate prior to premium calculation. Field 238 is a Child Insurance Rider (CIR) Units field. CIR Units refer to child insurance riders added to the premium, wherein each unit typically corresponds to each covered child. Preferably, the number of CIR units is limited to 10.

In addition to the various data entry fields 208-238, the proposed insured data screen also includes navigation controls 240 for enabling the user to navigate between various data records. Preferably, the navigational controls 240 include: a back to first record control 242, a back one record control 244, a specific record number field 246 for entry of a specific record number, a forward one record control 248, and a forward to last record control 250. Navigational control 240 also preferably includes a create new record

control 252, the selection of which causes the system to display a blank proposed insured data screen and appends any received data as a new record at the end of the record list. In addition to navigation control, the total number of available records is also displayed to the user.

Upon entry of proposed insured data in fields 208-238, the user can choose to review and print a plurality of reports for the selected record by choosing a print reports button 254. A batch data button 256 is also provided for enabling the user to upload the entered data in to the insurance company mainframe. Details relating to this feature are set forth below. The user may also select a duplicate record button 258, the selection of which generates a new record having default values equal to those of the selected record. In this manner, the user can initiate a new sample case having minimal changes to the selected case in an easy and time efficient manner. In the event a user wishes to delete the current record, a delete record button 260 is also provided.

Referring back now to FIG 1, the system, in step 108, receives the information entered into the proposed insured data screen regarding the sample case. In a preferred embodiment, the system automatically saves the data entered into the proposed insured data screen without direct user action. However, it should be understood that an alternative embodiment of the system could require an affirmative step on the part of the user to save the input data. Next, in step 110, the system receives a user request to either: 1) print and/or review reports based upon the input information; 2) upload the entered proposed insured information as batch data to a related mainframe database; 3) duplicate the entered data into a new record; 4) delete the currently displayed data record; 5) navigate to another previously saved proposed insured data record; or 5) generate a new proposed insured data screen wherein a data related to new sample case may be entered by the user.

If the user chooses to duplicate the entered data by clicking on the duplicate record button 258 described above in FIG. 2, the system, in step 112, generates a new data record and appends this record to the end of the list of data records and returns the user to step 110, where a proposed insured data screen is displayed having fields pre-populated with the values of the duplicated record. If necessary, the user may modify the field entries in the manner set forth above.

If the user chooses to delete a selected proposed insured data record by clicking on the delete record button 260 described above in FIG. 2, the system, in step 114, displays a confirm delete dialog box asking the user to confirm that they want to delete the selected record. If the user confirms the delete command, the system, in step 116, the system deletes the selected data record from the database and returns the user to the proposed insured data screen wherein the subsequent record data is displayed. If, however, the user cancels the delete command, the system returns the user to the proposed insured data screen without deleting the record.

If, in step 110, the user chooses to navigate to another previously saved proposed insured data record by using the navigation controls 240, described above, the system, in step 118, retrieves the data associated with the selected previously saved record. In step 120, the system displays a proposed insured data screen pre-populated to include the retrieved values. In step 122, the system receives any modifications that the user may make to the data screen and returns the user to the proposed insured data screen.

If the user, in step 110, chooses to generate a new proposed insured data screen by clicking on the create new record control 252 described above, the system, in step 120, displays a new proposed insured data screen. In step 122, the system receives any proposed insured data entered by the user, saves the data to a new record and returns the user to step 110 where additional options may be selected.

If, in step 110, the user chooses to print and/or review reports based upon the data associated with the current data record, the system proceeds to step 300 of FIG. 3. FIG. 3, is a flow chart describing one embodiment of a method for printing and/or reviewing reports generated by the system. In step 300, the system displays a listing of report options including: 1) a manual calculation worksheet based upon the entered data; 2) a schedule of premiums for the selected case illustrating the premium costs for one year; 3) a schedule of guaranteed premiums for the selected case; and 4) an Interested Adjusted Cost (IAC) calculation form showing the IAC values for the first 10 years and the first 20 years of the policy. The IAC is a standardized value used to compare plans from different companies and must be calculated in many states.

If, in step 300, the system receives a request to print and/or review the manual calculation worksheet for the presently displayed record, the system proceeds to step 302,

wherein the system analyzes the received information and retrieves corresponding information from the stored rate table information. Then, in step 304, the system generates and displays, to the user, the manual calculation worksheet for the selected sample case. Preferably, the system, in association with the manual calculation worksheet provides the user with options to: 1) print the schedule; 2) save the schedule as a separate data file for retrieval by a word processing application or the like; and 3) cancel the review process and return back to the proposed insured data. If the system receives a user request to print the worksheet, the system, in step 306, prints the worksheet to a peripheral device accessible to the user and, preferably, returns the user to step 304 where additional options may be selected..

If, in association with step 304, the system receives a user request to save the schedule of premiums into a separate data file, the system, in step 308, displays a save as dialog box to the user wherein the user can select a particular destination and name for the data file. Next, in step 310, the system receives the user's data file information and, in step 312, saves the schedule of premiums to the selected file location. Preferably, upon saving of the file, the system returns the user to step 304, where additional options may be selected. If the system, in association with step 304, receives a request to cancel the review process, the system returns the user to the proposed insure data screen for the present record at step 110 of FIG. 1.

Referring now to FIG. 4, there is shown one preferred embodiment of a manual calculation worksheet 400. The manual calculation worksheet 400 is an automated version of the worksheet conventionally hand calculated for verifying the accuracy of the actuarial rate tables. Preferably, the manual calculation worksheet, for the selected sample case displays the information received from the user in the proposed insured data screen in line-item fashion. In this manner, one reviewing the worksheet can easily identify the amount of the premium cost specifically attributable to each factor. Further the cost of the premium is further broken down into cost per unit of coverage requested so as to further clarify the amount of premium cost attributable to a particular factor and the amount of premium cost attributable to the amount of coverage selected.

In particular, the manual calculation worksheet 400 includes a policy information area 402, including information related to the proposed insured such as policy number,

coverage amount, sex and age of the insured, an identifier related to the particular insurance plan selected, a table rating applied to the insured (if any), and the applicable rate class assigned to the individual. A base rate section 404 indicates the base, per unit rate applied to the proposed insured multiplied by the total number of units requested, thereby corresponding in a portion of the premium cost. For the example shown in FIG. 4, the base premium rate is $0.37 for each of the 1000 units, thereby resulting in a base premium of $370.00.

A policy fee section 406 sets forth any applicable policy fee applied to the cost of the premium. This fee (if any) is added to the premium base rate and results in a base premium subtotal of the two values. For the illustrated example, a policy fee has not been charged, thereby resulting in a premium subtotal of $370.00. Next, a table rating section 408 sets forth the table rating value (if any) multiplied by the insured's base rate. As set forth above, the table rating is generally defined as a percentage of the insured's base rate, therefore, multiplying the table rating by the insured's base rate results in the per unit table rate value. This value is then multiplied by the total number of requested units to result in the amount of premium increase. In the shown example, no table rating is applied.

A permanent flat extra area 409 includes the per unit cost of any permanent flat extras applied to the insured. This value is multiplied by the total number of units, with the resulting value added to the annual premium. Similarly, a temporary flat extra area 410 sets forth the per unit cost of any temporary flat extras applied to the insured. This value is multiplied by the total number of units, with the resulting value also added to the annual premium. In the present example, no permanent or temporary flat extras have been applied.

A CIR units area 412 sets forth the number of child insurance riders (if any) selected by the insured multiplied by the pre-determined cost of each CIR unit based upon the insured's rate class. In the example shown, the cost of each CIR unit is $5.50, although no CIR's have been selected. The resulting value is added to the premium cost.

A waiver area 414 sets forth, if selected, the per unit cost of the premium waiver for the insured's rate class and table rating (if applied). In the present example, since a premium waver has not been selected the per unit cost is $0.00. However, if a premium

waiver had been selected, the cost of the waiver would be multiplied by total units of coverage, resulting in a premium increase being applied.

A total annual premium area 416 sets forth the total premium applied to the insured which results from each of the above itemized factors. Further, a premium table 418 is included showing the current and maximum annual premiums for each year of the policy. Although FIG. 4 shows only premiums for ages 27-37, in a preferred embodiment, the table 418 discloses premiums for all years from the current year through age 99. In addition to current and maximum premium information, the table 418 also preferable includes a description of the amount of the premium attributable to premium waiver and CIR's and the current and guaranteed IAC ratings for the 10 and 20 year levels.

Returning back to FIG. 3, if the system, in step 300, receives a request to print and/or review the schedule of premiums report for the presently displayed record, the system, in step 314, analyzes the received information and retrieves corresponding information from the stored rate table information. Next, in step 316, the system generates and displays, to the user, the schedule of premiums report for the selected sample case. The displayed schedule of premiums report is preferably in a format suitable, upon printing, for filing with any required state affiliated agency.

As with the manual calculation worksheet, the system, in association with the schedule of premium report provides the user with options to: 1) print the schedule; 2) save the schedule as a separate data file for retrieval by a word processing application or the like; and 3) cancel the review process and return back to the proposed insured data screen. If the system receives a user request to print the worksheet, the system, in step 318, prints the worksheet to a peripheral device accessible to the user and, preferably, returns the user to step 316 where additional options may be selected.

If the system, in association with step 316, receives a request to save the schedule of premiums into a separate data file, the system, in step 320 saves the schedule of premiums to a file in a manner substantial identical to the file save method described above in association with the manual calculation worksheet. Preferably, upon saving of the file, the system returns the user to step 316 where additional options may be selected. If the system, in association with step 316, receives a request to cancel the review

process, the system returns the user to the proposed insure data screen at step 110 of FIG. 1.

Referring now to FIG. 5, there is shown one preferred embodiment of a schedule of premiums 500. As with the manual calculation worksheet 400, the schedule of premiums 500 is an automated version of the premium schedule conventionally hand calculated for filing with various appropriate state agencies. Preferably, the schedule of premiums 500, for the selected sample case displays the current and maximum annual premiums for each year of the policy through the insured's age 99. Further, the schedule preferably includes an indication of the IAC at both the 10 year and 20 year levels, so as to enable prospective insureds to compare policies from different carriers.

Returning back to FIG. 3, if the system, in step 300, receives a request to print and/or review the schedule of guaranteed premiums report for the presently displayed record, the system, in step 322, analyzes the received information and retrieves corresponding information from the stored rate table information. Next, in step 324, the system generates and displays, to the user, the schedule of guaranteed premiums report for the selected sample case. As with the schedule of premiums report, the schedule of guaranteed premiums report is preferably in a format suitable, upon printing, for filing with any required state affiliated agency.

As with the schedule of premiums report described above, the system, in association with the schedule of guaranteed premium report provides the user with options to: 1) print the schedule; 2) save the schedule as a separate data file for retrieval by a word processing application or the like; and 3) cancel the review process and return back to the proposed insured data screen. If the system receives a user request to print the worksheet, the system, in step 326, prints the worksheet to a peripheral device accessible to the user and, preferably, returns the user to step 324 where additional options may be selected.

If the system, in association with step 324, receives a request to save the schedule of guaranteed premiums into a separate data file, the system, in step 328 saves the schedule of premiums to a file in a manner substantial identical to the file save method described above in association with the manual calculation worksheet and schedule of premiums. Preferably, upon saving of the file, the system returns the user to step 324

where additional options may be selected. If the system, in association with step 324, receives a request to cancel the review process, the system returns the user to the proposed insure data screen at step 110 of FIG. 1.

If the system, in step 300, receives a request to print and/or review an IAC calculation form, the system, in step 330, analyzes the received information and, in step 332, generates and displays, to the user, an IAC calculation screen illustrating the current and maximum IAC values for both the 10 year and 20 year periods for the proposed insured's policy. Along with this information, the system provides a print form button and a close form button. Upon selection of the print form button, the system, in step 334, prints the form to a peripheral device accessible to the user and, preferably, returns the user to step 332 where additional options may be selected. Upon selection of the close form button, the system closes the IAC calculation screen and returns the user to the proposed insure data screen at step 110 of FIG. 1.

Returning to FIG. 1, if, in step 110, the system receives a user request to upload the entered proposed insured information as batch data to a related mainframe database. The system, in step 124, performs the upload process, thereby rendering information supplied in the proposed insured data screen available to mainframe users. In conventional insurance policy computer systems these policies are manually keyed into mainframe entry screens to test all of the mainframe rate changes and/or coding changes. This method allows insurance companies to ensure that the data from both systems match exactly. Additional features of the batch upload process are set forth in detail below. Following batch data upload, the system returns the user to step 110 for the selection of additional options.

In addition to enabling testing of premium rate information, one embodiment of the present system also enables users to perform other tasks associated with insurance rate verification. In particular, a preferred embodiment of the present system also includes the following options: 1) an edit table rating option enabling users to edit the various table rating percentages; 2) a multiple illustration printing option enabling users to print multiple illustrations in a single operation, thereby avoiding the necessity to pull up and review each discrete illustration record; 3) an annual premium calculator option enabling users to quickly submit an insured's pertinent personal and policy information and obtain

a resulting annual premium; 4) an import rates option enabling users to copy insurance rate information from a designated location into the system; and 5) an import test case data option enabling users to import test case data not entered directly into the system in the manner set forth above. Brief descriptions of each of these options will be discussed below.

Referring to FIG. 6, there is shown a flow chart describing a method for editing a table rating option in accordance with a preferred embodiment of the present invention. In step 600, the system receives a user request to edit table rating rates. In response to this request, the system, in step 602, displays a table rating values screen having thereon an editable listing of the various table ratings and associated percentages. The editable nature of the listing enables users to edit the table rating information. In step 604, the system receives modified table rating information and saves the information for subsequent use by the system in calculating premiums and reports, as set forth above.

Referring to FIG. 7, there is shown a flow chart describing a method for printing multiple test case illustrations in a single operation in accordance with a preferred embodiment of the present invention. In step 700, the system receives a user request to print multiple illustrations. In response, the system, in step 702 displays a multiple illustration printing screen having thereon a beginning policy drop-down menu, an ending policy drop-down menu, a run illustrations button, and a create batch option. The user selects the desired beginning and ending policies from the drop-down menus. If the user selects the run illustrations option, the system, in step 704 generates manual calculation worksheets for each policy in the selected range. The user may then review, export, or print, the reports in the manner set forth above. Once report manipulation has been completed, the system returns the user to the multiple illustration printing page in step 702.

If the user selects the create batch option, the system, in step 706, uploads the insured's data from each policy in the selected range into the insurance company's main mainframe database for subsequent retrieval and use by mainframe operations. Preferably, following successful operation of the upload process, the system, in step 708 generates and displays a upload confirmation message. Upon display of this message, the system returns the user to the multiple illustration printing screen in step 702.

Referring to FIG. 8, there is shown a flow chart describing a method for quickly and easily providing annual premium information to a user. In step 800, the system receives a user request to utilize the annual premium calculator feature. In response to this request, the system, in step 802 displays a premium calculator screen including a plurality of user defined data fields and/or drop-down menus related to policy type, coverage amount, age and sex of the insured, and rate class of the insured. In step 804, the system receives a request to calculate an annual premium based upon the submitted information. In step 806, the system, utilizing the submitted information, generates and displays both the total annual premium as well as the rate per thousand units of coverage.

Referring now to FIG. 9, there is shown a flow chart describing a method for importing insurance rate information into the present system. In order to provide up to date information to system users, it is necessary to enable the system to receive new policy information or updated rate information. Conventionally, actuaries would produce rate cards for each policy type indicating the annual premium per thousand units of coverage for all possible permutations of insureds. In accordance with a preferred embodiment of the present invention, a feature is provided for enabling this rate information to be imported in the system, for use in the manner described in detail above.

In step 900, the system receives a user request to import rates. In response to this request, the system in step 902, displays an import rates screen including a user-defined data entry field for receiving the file location of the rates to be imported. The import rate screen also includes an import premium rates button and a import waiver rates button. Upon selection of the import premium rates button, the system, in step 904, retrieves the rate information from the designated location and, in step 906 imports the rates into a premium rate database associated with the system, for subsequent use in the manner described above. Similarly, upon selection of the import waiver rates button, the system, in step 908, retrieves the rate information from the designated location and, in step 910, imports the rates into waiver rate database. It should be understood that premium rates refer to the coverage rates applicable to the various proposed insureds, while waiver rates refer to the rates applied for the addition of premium waivers.

In a preferred embodiment, the system copies the rates previously existing populated the respective databases into backup databases, so as to enable users to "undo" undesirable importation.

Referring now to FIG. 10, there is shown a flow chart describing a method for importing test case data into the system in accordance with a preferred embodiment of the present invention. In step 1000, the system receives a user request to import test case data into the system. In response to the request, the system, in step 1002, displays an import tests case data screen including a plurality of data entry fields for receiving a file location and the number of policies to be imported. In step 1004, the system receives the submitted information regarding file location and number of policies. In step 1006, the system receives a user request to import the data and, in step 1008, the system imports test case data from the designated location.

Referring now to the batch data process described briefly above, a preferred embodiment of the system of the present invention includes a feature for enabling users to upload additional ancillary test case data regarding proposed insureds into the mainframe as part of a batch data upload, processes in the manner set forth in detail above. Referring now to FIG. 11, there is shown a flow chart describing one implementation of such a feature. In step 1100, the system displays a proposed insured data form including a plurality of selectable tabs in a known manner. Preferably, the tabs include a policy date information tab, a policy state information tab, and a policy miscellaneous data tab, although any suitable descriptive number of tabs may be utilized.

Upon selection of a particular tab, the system displays an associated data entry screen wherein users may input information related to the selected tab. Upon insertion of all desired information, the user may select a batch data upload from the proposed insured data screen in the manner set forth above. In step 1102, upon receipt of a user selection of the policy date information tab, the system displays a policy date information screen including a plurality of data entry fields in which the user enters data relating to the various dates associated with the particular policy. Preferably, the data fields include: an application date field; an application received date field; an underwriter approval date field; a ready to issue date field; an effective date/policy date field; an issue date field; and a delivery date field. In step 1104, the system receives the users policy date

information for subsequent upload to the mainframe. Following step 1104, the user can select any of the other available tabs in steps 1100, 1106, and 1110.

In step 1106, upon receipt of a user selection of the policy state information tab, the system displays a policy state information screen including a plurality of data entry fields in which the user enters data relating to the state the policy is to be issued in. Preferably, the data fields include: an application/issue state field; a residence state field; and a country/city field. In step 1108, the system receives the users policy state information for subsequent upload to the mainframe. Following step 1108, the user can select any of the other available tabs in steps 1100, 1102, and 1110.

In step 1110, upon receipt of a user selection of the policy miscellaneous data tab, the system displays a miscellaneous data screen including a plurality of data entry fields in which the user enters miscellaneous data related to the policy. Preferably, the data fields include: an accidental death benefit field; an adverse field; a planned premium field; a planned initial premium field; a rollover amount field; a cash with application field; and a billing form type field. In step 1112, the system receives the users miscellaneous policy data information for subsequent upload to the mainframe. Following step 1112, the user can select any of the other available tabs in steps 1100, 1102, and 1006.

Although preferred data has been described above in association with each of the identified tabs, it should be understood that the specific articles of data requested and inserted into the various screens is limited to the above-described embodiment. Rather, any data useful to the insurance industry may be requested and received. In this manner, the system of the present invention provides a single uniform interface for enabling users to enter data for both rate testing purposes as well as ancillary insurance practices. The additional functionality of batch data uploads enables users to utilize the present system to modify the information contained on the mainframe and subsequently utilized by additional processes unrelated to the testing of rate information.

While the foregoing description includes many details and specificities, it is to be understood that these have been included for purposes of explanation only, and are not to be interpreted as limitations of the present invention. Many modifications to the embodiments described above can be made without departing from the spirit and scope of

the invention, as is intended to be encompassed by the following claims and their legal equivalents.

We Claim:

1. A computer readable medium including a software application for enabling interactive verification of insurance premium rates, said software application comprising:

one or more instructions for receiving insurance rate information relating to at least one insurance rate plan;

one or more instructions for saving said insurance rate information;

one or more instructions for receiving a request to test said insurance rate information for accuracy;

one or more instructions for receiving test case illustration data relating to at least one proposed insured;

one or more instructions for analyzing said received test case illustration data;

one or more instructions for retrieving, from said received insurance rate information, particular insurance rate information associated with said received test case illustration data;

one or more instructions for generating at least premium information associated with said received test case illustration data and based upon said retrieved particular insurance rate information; and

one or more instructions for displaying said premium information.

2. The software application of claim 1, wherein said one or more instructions for receiving insurance rate information further comprises;

one or more instructions for receiving a user request to import said insurance rate information;

one or more instructions for receiving a file location from said user designating the location of the insurance rate information to be imported;

one or more instructions for importing said insurance rate information from said designated file location.

3. The software application of claim 1, wherein said insurance rate information relates to a plurality of distinct insurance rate plans.

4. The software application of claim 1, wherein said one or more instructions for saving said insurance rate information further comprises one or more instructions for saving said insurance rate information to at least one database associated with said computer readable medium.

5. The software application of claim 1, wherein said one or more instructions for receiving test case illustration data further comprises:

one or more instructions for displaying to a user, a test case illustration data entry screen, wherein said test case illustration data entry screen includes a plurality of data entry fields for receiving information relating to a particular proposed insured;

one or more instructions for saving, as a data record, said received test case illustration data entered in said plurality of data entry fields.

6. The software application of claim 5, wherein said plurality of data entry fields comprise:

a plurality of basic information data entry fields;

a plurality of flat extras data entry fields; and

a plurality of rider information data entry fields.

7. The software application of claim 6, wherein said plurality of basic information data entry fields comprise:

a policy number field for receiving a unique policy identification number for the particular proposed insured;

an insured's age field for receiving an indication as to the age of the particular proposed insured;

an insured's sex field for receiving an indication as to the sex of the particular proposed insured;

an insurance plan selection field for receiving an indication as to which particular insurance rate plan is to be tested;

a rate class field for receiving an indication as to the rate class assigned to the particular proposed insured;

a units field for receiving an indication as to a number of units of coverage for the particular proposed insured;

a unit value field for receiving an indication as to the dollar value of each unit of coverage indicated in said units field;

a policy fee field for receiving an indication as to the cost of a policy fee charged to the particular proposed insured, and;

a table rating field for receiving an indication as to table rating applied to the particular proposed insured.

8. The software application of claim 6, wherein said plurality of flat extras data entry fields comprise:

a permanent flat extras field for receiving an indication as to the cost of any permanent flat extras applied to the particular proposed insured;

a temporary flat extras field for receiving an indication as to the cost of any temporary flat extras applied to the particular proposed insured; and

a temporary flat extras duration field for receiving an indication as to the duration of the application of any temporary flat extras indicated in the temporary flat extras field.

9. The software application of claim 6, wherein said plurality of rider information data entry fields comprise:

a premium waiver field for receiving an indication as to the whether a premium waiver has been selected by the particular proposed insured;

a rated premium waiver field for receiving an indication as to the rating applied to the premium waiver selected in the premium waiver field; and

a child insurance riders field for receiving an indication as to the number of child insurance riders selected by the particular proposed insured;

10. The software application of claim 1, wherein said one or more instructions for receiving test case illustration data further comprises:

one or more instructions for receiving a file location from said user designating the location of the test case illustration data to be imported;

one or more instructions for importing said test case illustration data from said designated file location; and

one or more instructions for saving said imported test case illustration data, wherein test case illustration data relating to each of said at least one proposed insured is saved as a separate data record.

11. The software application of claim 1, wherein said one or more instructions for receiving test case illustration data further comprises:

one or more instructions for displaying a premium calculator screen to a user, wherein said premium calculator screen includes a plurality of data entry fields for receiving information relating to a particular proposed insured; and

one or more instructions for receiving proposed insured data entered in said plurality of data fields on said premium calculator screen.

12. The software application of claim 1, wherein said step of generating at least premium information further comprises:

one or more instructions for receiving a user request to generate at least one report associated with a particular test case included with said received test case illustration data;

one or more instructions for generating said at least one report based upon said particular test case; and

one or more instructions for displaying said at least one report to said user.

13. The software application of claim 12, wherein said at least one report comprises a manual calculation worksheet itemizing a current premium cost based upon received said test case illustration data.

14. The software application of claim 12, wherein said at least one report comprises a schedule of premiums including current premium costs and maximum premium for each possible policy year, wherein said schedule of premiums is suitable for filing with suitable governmental agencies.

15. The software application of claim 12, wherein said at least one report comprises a schedule of guaranteed premiums including maximum premium costs for each possible

policy year, wherein said schedule of guaranteed premiums is suitable for filing with suitable governmental agencies.

16. The software application of claim 12, wherein said at least one report comprises a IAC report including the standardized IAC values for both a 10 year term and a 20 year term.

17. The software application of claim 1, wherein said step of generating at least premium information further comprises:

one or more instructions for receiving a user request to simultaneously generate a plurality of reports associated with a corresponding plurality of particular test cases included with said received test case illustration data;

one or more instructions for generating said plurality of reports based upon said corresponding plurality of particular test cases; and

one or more instructions for displaying said plurality of reports to said user.

18. The software application of claim 1, further comprising:

one or more instructions for receiving a user request to upload said received test case illustration data to a mainframe; and

uploading said received test case illustration data to said mainframe.

19. The software application of claim 18, further comprising:

one or more instructions for displaying a plurality of ancillary test case data entry screens for receiving ancillary information relating to a particular test case;

one or more instructions for receiving ancillary test case data; and

uploading said test case illustration and said ancillary test case data to said mainframe.

20. The software application of claim 19, wherein said plurality of ancillary test case data entry screens comprise:

a policy date information screen for receiving information related to pertinent dates in policy formation for the particular test case;

a policy state information screen for receiving information related to pertinent state information concerning the particular test case; and

a miscellaneous policy information screen for miscellaneous additional information related to the particular test case.

21. A computer readable medium including a software application for enabling interactive verification of insurance premium rates, said software application comprising:

one or more instructions for receiving insurance rate information relating to at least one insurance rate plan, wherein said insurance rate information relates to a plurality of distinct insurance rate plans;

one or more instructions for saving said insurance rate information to at least one database associated with said computer readable medium;

one or more instructions for receiving a request to test said insurance rate information for accuracy;

one or more instructions for displaying to a user, a test case illustration data entry screen, wherein said test case illustration data entry screen includes a plurality of data entry fields for receiving information relating to a particular proposed insured;

one or more instructions for receiving test case illustration data relating to at least one proposed insured;

one or more instructions for saving, as a data record, said received test case illustration data entered in said plurality of data entry fields;

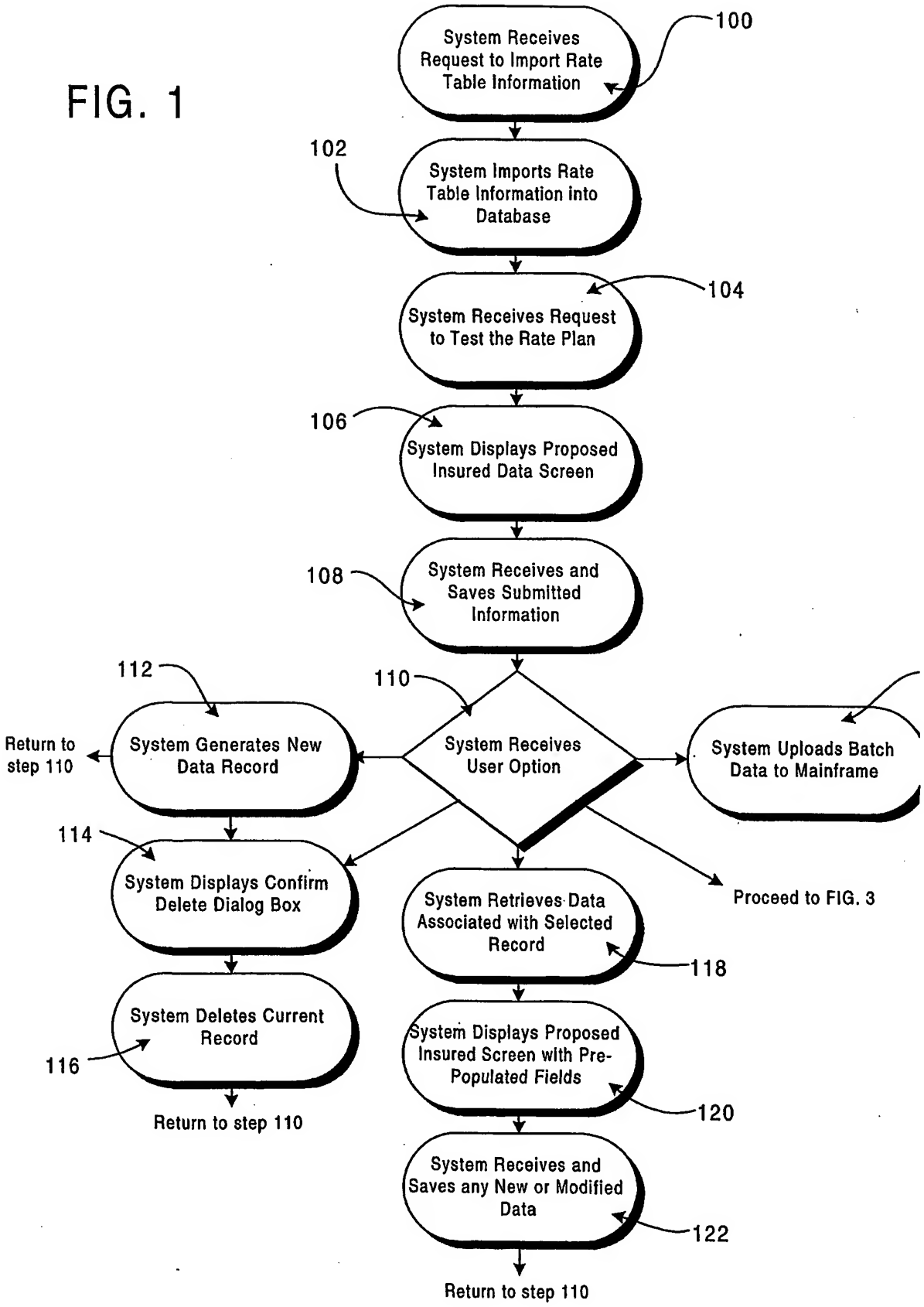
one or more instructions for analyzing said received test case illustration data;

one or more instructions for retrieving, from said received insurance rate information, particular insurance rate information associated with said received test case illustration data;

one or more instructions for generating at least premium information associated with said received test case illustration data and based upon said retrieved particular insurance rate information; and

one or more instructions for displaying said premium information.

FIG. 1


System Receives Request to Import Rate Table Information
100
System Imports Rate Table Information into Database
102
System Receives Request to Test the Rate Plan
104
System Displays Proposed Insured Data Screen
106
System Receives and Saves Submitted Information
108
System Receives User Option
110
System Generates New Data Record
112
Return to step 110
System Uploads Batch Data to Mainframe
System Displays Confirm Delete Dialog Box
114
System Deletes Current Record
116
Return to step 110
System Retrieves Data Associated with Selected Record
118
System Displays Proposed Insured Screen with Pre-Populated Fields
120
System Receives and Saves any New or Modified Data
122
Return to step 110
Proceed to FIG. 3

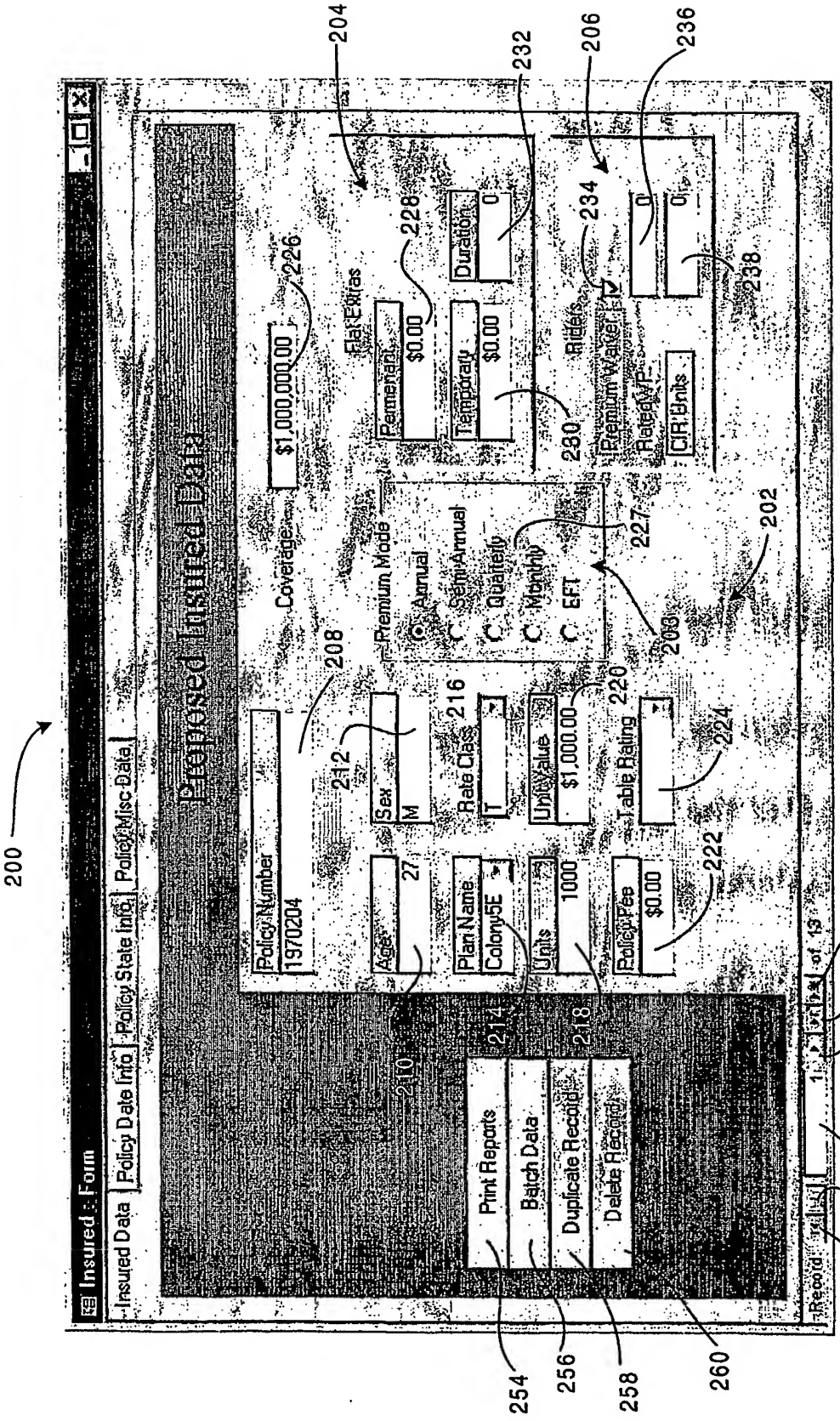
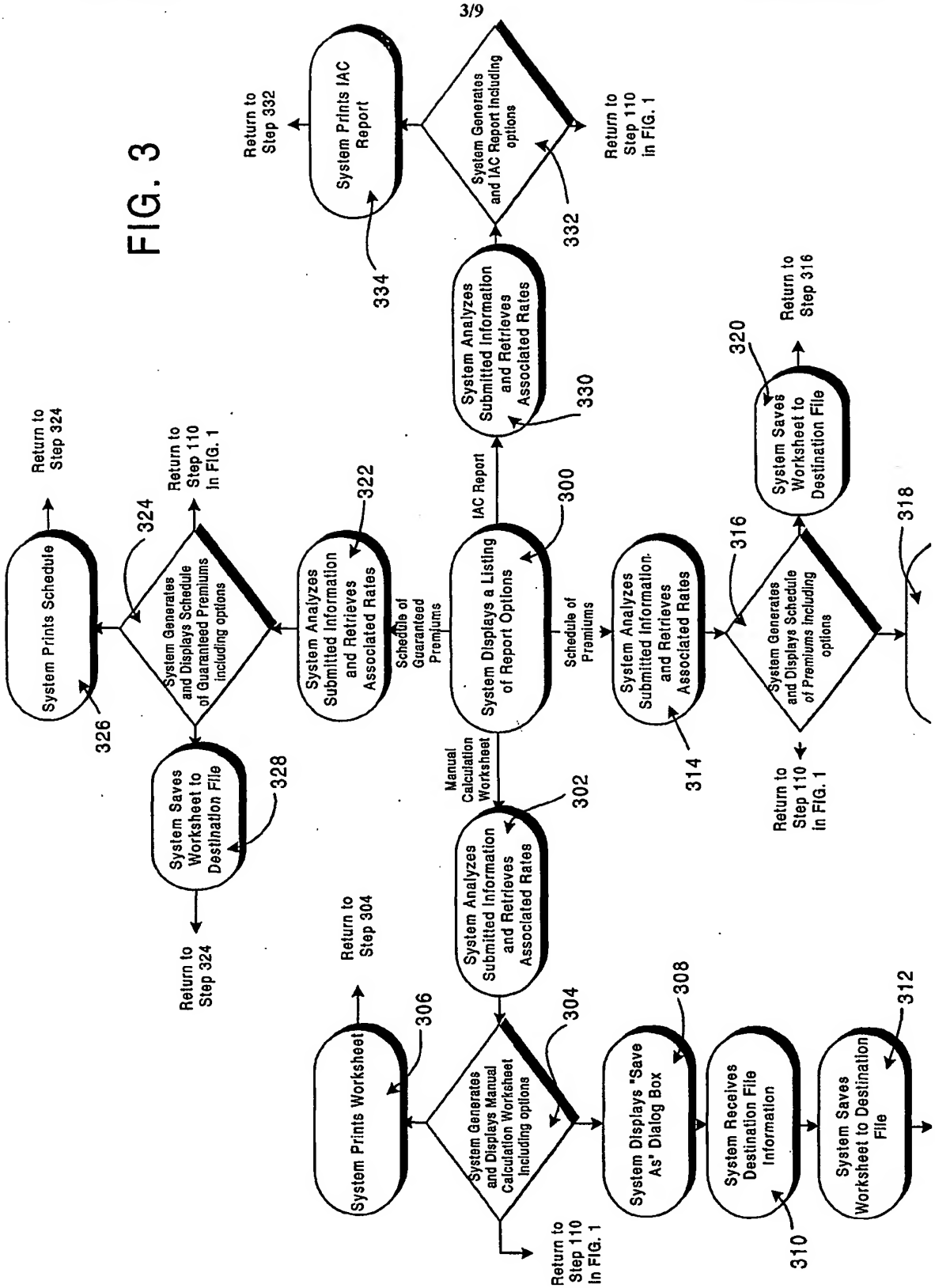

200
Insured : Form
Insured Data
Policy Date Info
Policy State Info
Policy Misc Data
Proposed Insured Data
Policy Number
1970204
208
Coverage
$1,000,000.00
226
204
Flat Extras
Permanent
$0.00
228
Temporary
$0.00
230
Duration
0
232
206
Riders
Premium Waiver
Rated PF
CR Units
234
236
0
0
238
Premium Mode
Annual
Semi-Annual
Quarterly
Monthly
EFT
227
202
203
Sex
M
212
Rate Class
T
216
Unit Value
$1,000.00
220
Table Rating
224
Age
27
210
Plan Name
ColonySE
214
Units
1000
218
Policy Fee
$0.00
222
Print Reports
Batch Data
Duplicate Receipt
Delete Record
Record
1
of 19
240
242
244
246
248
250
252
254
256
258
260

FIG. 2

FIG. 3


System Displays a Listing of Report Options
300
Manual Calculation Worksheet
IAC Report
Schedule of Premiums
Schedule of Guaranteed Premiums
System Analyzes Submitted Information and Retrieves Associated Rates
302
System Analyzes Submitted Information and Retrieves Associated Rates
322
System Analyzes Submitted Information and Retrieves Associated Rates
330
System Analyzes Submitted Information and Retrieves Associated Rates
314
System Generates and Displays Manual Calculation Worksheet including options
304
System Generates and Displays Schedule of Guaranteed Premiums including options
324
System Generates and Displays Schedule of Premiums including options
316
System Generates and IAC Report including options
332
System Prints Worksheet
306
System Prints Schedule
326
System Prints IAC Report
334
System Displays "Save As" Dialog Box
308
System Receives Destination File Information
310
System Saves Worksheet to Destination File
312
System Saves Worksheet to Destination File
328
System Saves Worksheet to Destination File
320
Return to Step 304
Return to Step 324
Return to Step 110 in FIG. 1
Return to Step 332
Return to Step 316
Return to Step 110 in FIG. 1
Return to Step 110 in FIG. 1
Return to Step 324
Return to Step 110 in FIG. 1
318

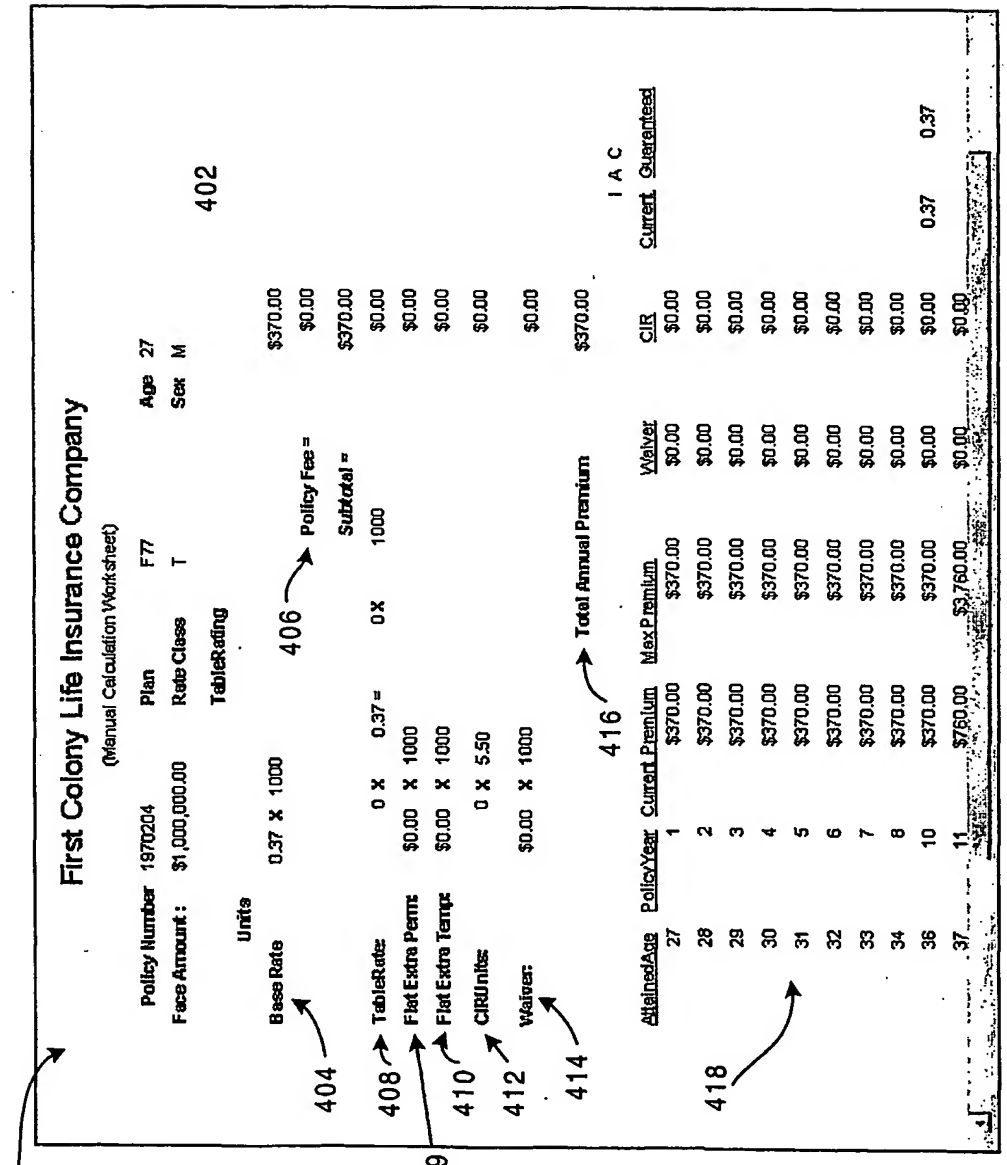

400
First Colony Life Insurance Company
(Manual Calculation Worksheet)
Policy Number 1970204 Plan F77 Age 27
Face Amount: $1,000,000.00 Rate Class T Sex M
402
TableRating
Units
Base Rate 0.37 X 1000 $370.00
406
Policy Fee = $0.00
Subtotal = $370.00
404
408 TableRate: 0 X 0.37 = 0 X 1000 $0.00
Flat Extra Perm: $0.00 X 1000 $0.00
409
410 Flat Extra Temp: $0.00 X 1000 $0.00
412 CIRUnits: 0 X 5.50 $0.00
414 Waiver: $0.00 X 1000 $0.00
416
Total Annual Premium $370.00
I A C
AttainedAge PolicyYear Current Premium MaxPremium Waiver CIR Current Guaranteed
418
27 1 $370.00 $370.00 $0.00 $0.00
28 2 $370.00 $370.00 $0.00 $0.00
29 3 $370.00 $370.00 $0.00 $0.00
30 4 $370.00 $370.00 $0.00 $0.00
31 5 $370.00 $370.00 $0.00 $0.00
32 6 $370.00 $370.00 $0.00 $0.00
33 7 $370.00 $370.00 $0.00 $0.00
34 8 $370.00 $370.00 $0.00 $0.00 0.37 0.37
36 10 $370.00 $370.00 $0.00 $0.00
37 11 $760.00 $3,760.00 $0.00 $0.00

FIG. 4

Pol No SPECIMEN

SCHEDULE *CONTINUED*

TABLE OF PREMIUMS AND AMOUNTS OF INSURANCE

Premiums

The Annual Premium is the annual premium the Company anticipates will be payable at the beginning of the policy year. The premiums payable are subject to change, but the annual premium payable for a policy year will never exceed the Maximum Annual Premium shown in this Table for that year.

Any change in premium will be due to the Company's re-evaluation of expected future mortality, interest, expenses, or persistency. The Company's past experience will not be a factor in any change in premium.

Change will be applied uniformly to a class of insureds. Class will be determined by the following: issue age and sex, premium classification, amount of insurance, and/or the number of years the insurance has been in force. The Company will mail notice of any change in premium. Premiums will not be changed more than once a year. A change will not affect the nonforfeiture values.

The deterioration of the Insured's health will not cause a change in the premium or the premium classification.

Rider premiums are included

500

PolicyYear	Current Premium	Max Premium	PolicyYear	Current Premium	Max Premium
1	$370.00	$370.00	26	$4,890.00	$11,720.00
2	$370.00	$370.00	27	$5,380.00	$12,860.00
3	$370.00	$370.00	28	$6,030.00	$14,180.00
4	$370.00	$370.00	29	$6,620.00	$15,640.00
5	$370.00	$370.00	30	$7,290.00	$17,260.00
6	$370.00	$370.00	31	$8,160.00	$18,980.00
7	$370.00	$370.00	32	$9,000.00	$20,840.00
8	$370.00	$370.00	33	$10,110.00	$22,940.00
9	$370.00	$370.00	34	$11,170.00	$25,280.00
10	$370.00	$370.00	35	$12,370.00	$27,880.00
11	$760.00	$3,760.00	36	$13,910.00	$30,840.00
12	$1,160.00	$4,000.00	37	$15,080.00	$34,220.00

FIG. 5

FIG. 6

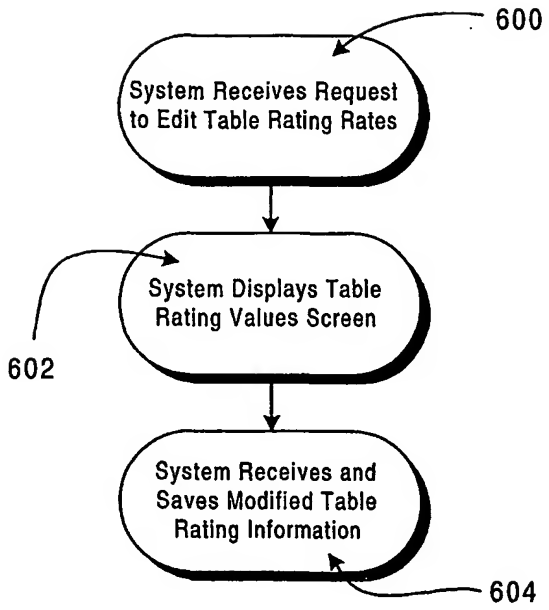

600
System Receives Request to Edit Table Rating Rates
System Displays Table Rating Values Screen
602
System Receives and Saves Modified Table Rating Information
604

FIG.

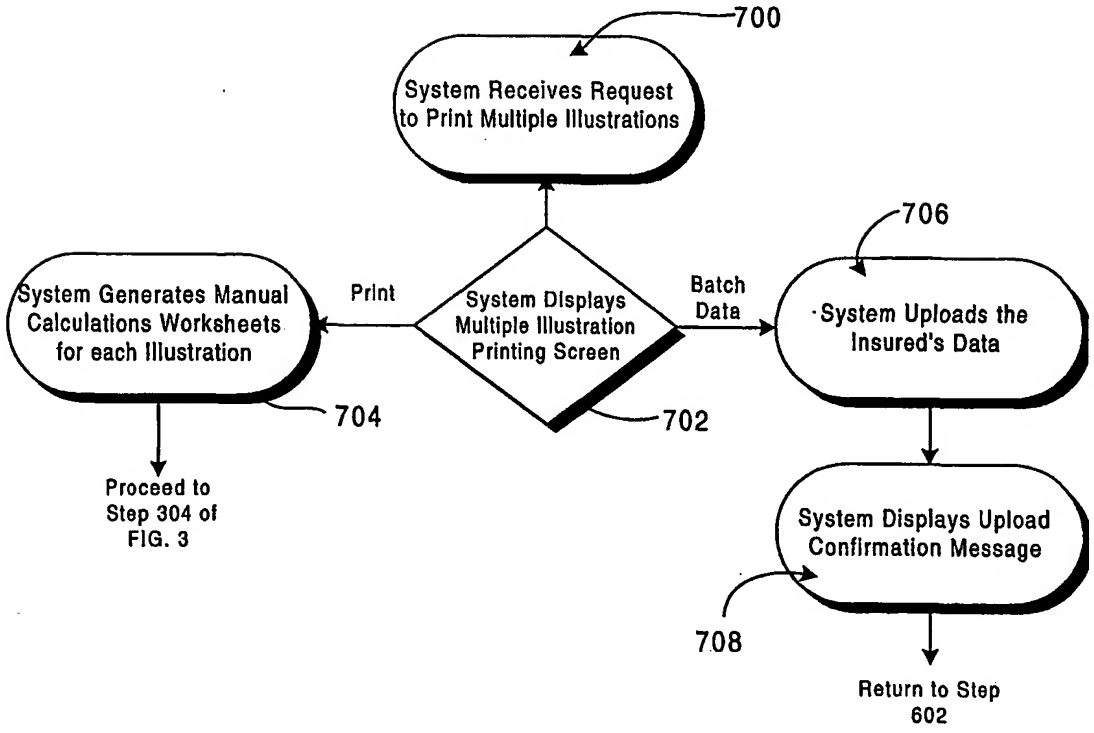

700
System Receives Request to Print Multiple Illustrations
706
System Generates Manual Calculations Worksheets for each Illustration
Print
System Displays Multiple Illustration Printing Screen
Batch Data
System Uploads the Insured's Data
704
702
Proceed to Step 304 of FIG. 3
System Displays Upload Confirmation Message
708
Return to Step 602

FIG. 8

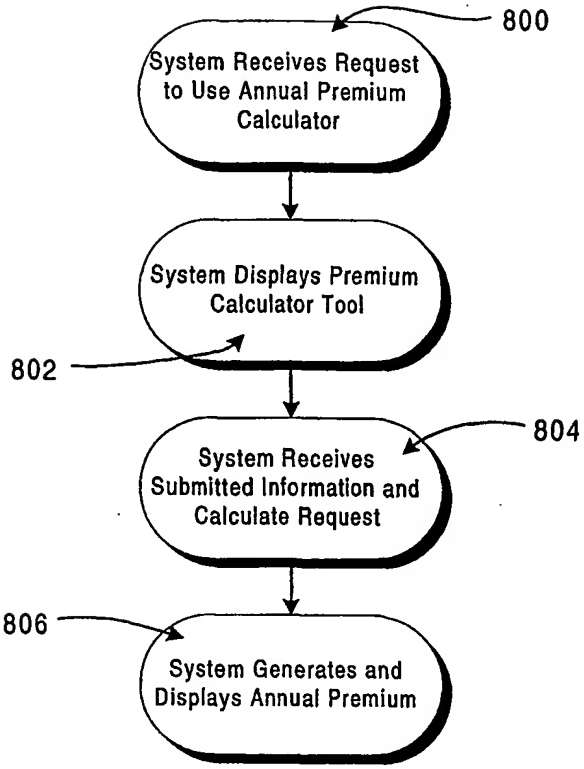

800
System Receives Request to Use Annual Premium Calculator
System Displays Premium Calculator Tool
802
804
System Receives Submitted Information and Calculate Request
806
System Generates and Displays Annual Premium

FIG. 9

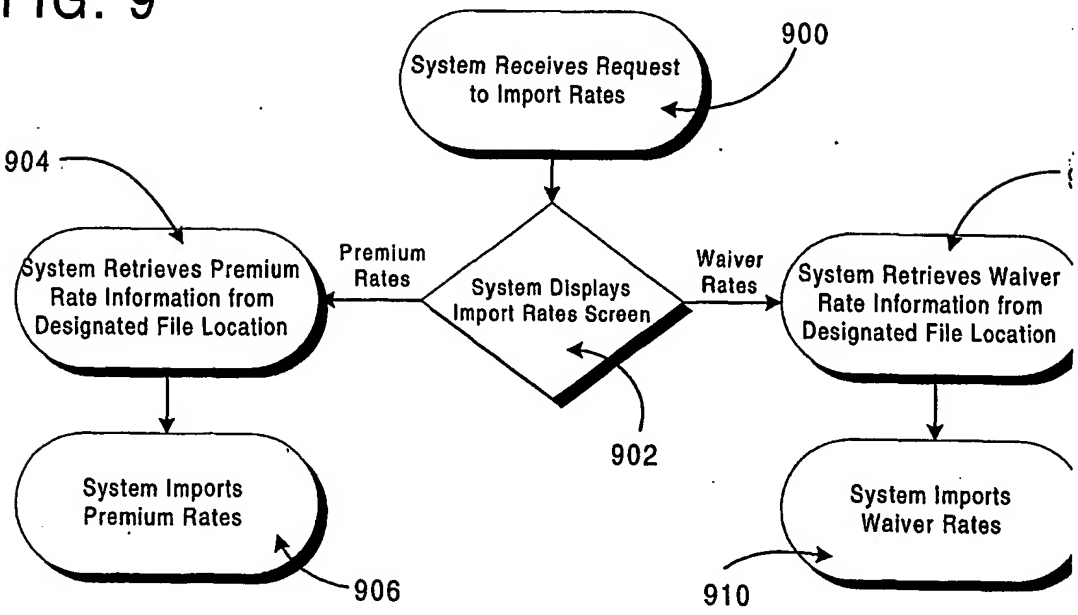

900
System Receives Request to Import Rates
904
System Retrieves Premium Rate Information from Designated File Location
Premium Rates
System Displays Import Rates Screen
Waiver Rates
System Retrieves Waiver Rate Information from Designated File Location
902
System Imports Premium Rates
906
System Imports Waiver Rates
910

FIG. 10

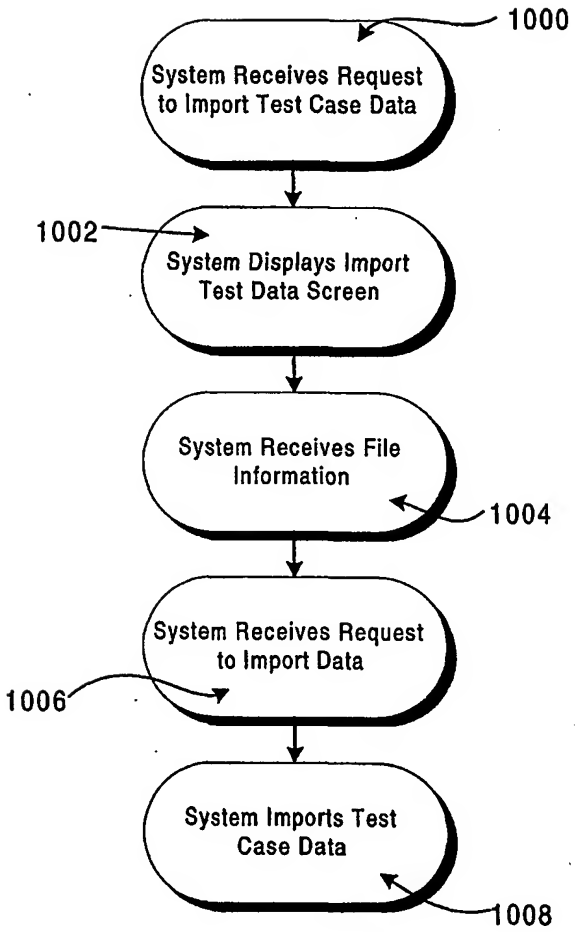
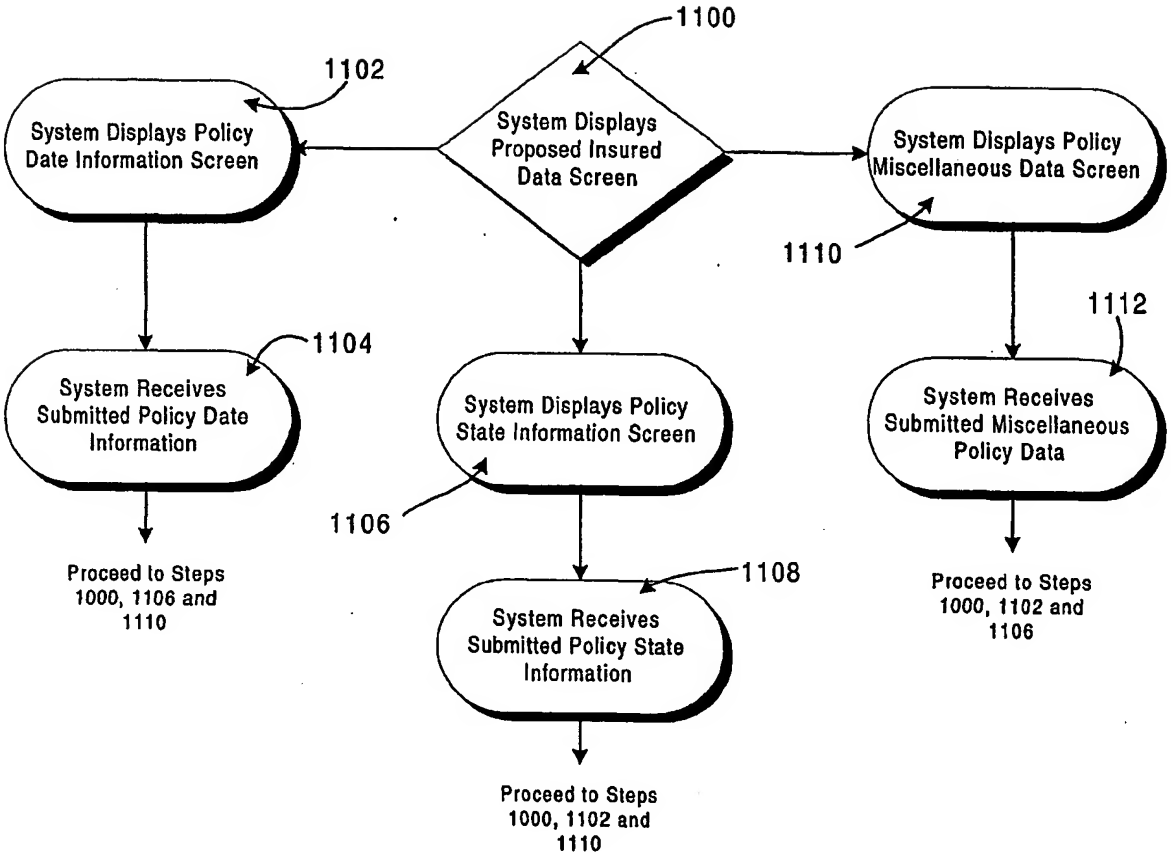

1000
System Receives Request to Import Test Case Data
1002
System Displays Import Test Data Screen
System Receives File Information
1004
System Receives Request to Import Data
1006
System Imports Test Case Data
1008

FIG. 11


1100
1102
System Displays Policy Date Information Screen
System Displays Proposed Insured Data Screen
System Displays Policy Miscellaneous Data Screen
1110
1112
1104
System Receives Submitted Policy Date Information
System Displays Policy State Information Screen
System Receives Submitted Miscellaneous Policy Data
1106
1108
Proceed to Steps 1000, 1106 and 1110
System Receives Submitted Policy State Information
Proceed to Steps 1000, 1102 and 1106
Proceed to Steps 1000, 1102 and 1110

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/32145

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 13/00

US CL : 705/2, 4, 35, 36, 37, 38, 39

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/2, 4, 35, 36, 37, 38, 39

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,832,447 A (RIEKER et al.) 03 NOVEMBER 1998, abstract, col 1, lines 15-67, col 2, lines 1-67, col 3, lines 1-52, col 5, lines 25-67, col 6, lines 1-58	1-25
Y,P	US 6,236,973 B1 (DILLARD) 22 MAY 2001, abstract, col 1, lines 20-67, col 2, lines 1-65, col 3, lines 25-67, col 4, lines 1-67, col 5, lines 1-67, col 6, lines 1-65	1-25

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 05 JANUARY 2002	Date of mailing of the international search report 16 JAN 2002
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer PIERRE EDDY ELISCA Telephone No. (703) 305-3987

Form PCT/ISA/210 (second sheet) (July 1998)*